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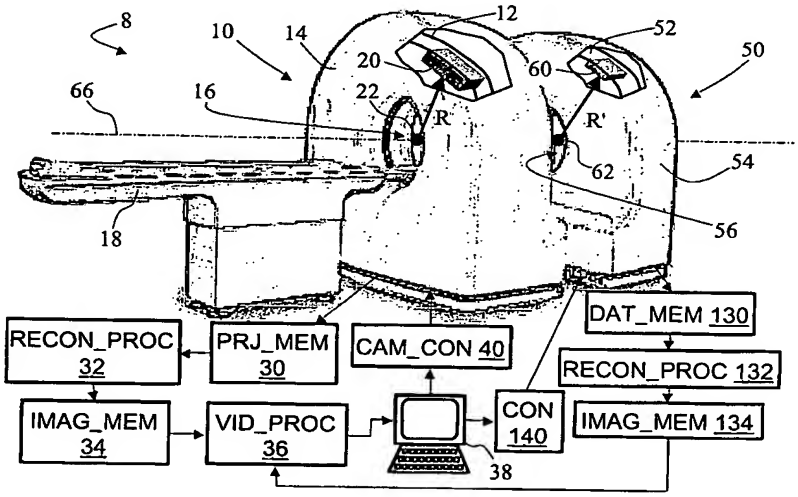
(54) Title: CONSTANT RADIUS SINGLE PHOTON EMISSION TOMOGRAPHY



(57) Abstract: A nuclear camera (10) includes four or more gamma detectors (20, 20', 20", 201, 202, 203, 204, 205, 206) arranged on a generally circular rotatable gantry (12, 12', 12", 12"') around an imaging region that emits emission radiation. The gamma detectors are each disposed at a fixed equal distance (R, R2, R3, R5) from an imaging isocenter (22, 22', 22", 22"') to rotate in a fixed radius circular orbit. Each gamma detector includes a radiation sensitive surface (72) that responds to the emission radiation and a slat collimator (70) that spins about an axis 88. Resolution and sensitivity at the fixed radius are selected by selecting collimator slat height (Wz) and spacing (G) and radiation sensitive surface width (Cy). The gamma detectors and rotating gantry are enclosed in an optically opaque toroidal housing (14) that defines a generally circular bore (16) that admits imaging subjects over a range of sizes.

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